

Demod Plot

Nameplate Information	Make	GE
	Model	5K6328XC279A
	Description	Service Water
	Stator Slots	96
	Rotor Bars	117
	Poles	8
	Synchronous Speed (rpm)	900
	Synchronous Speed (Hz)	15
	Running Speed (rpm)	885
	Running Speed (Hz)	14.75
	Slip Frequency	7.5
Stator Mechanical or Electrical	Stator Lower Sideband (Hz)	1401.25
	Stator Center Freq (Hz)	1416.00
	Stator Upper Sideband (Hz)	1430.75
Broken Rotor Bars	Upper Rotor Sideband 2	64.00
	Upper Rotor Sideband 1	62.00
	Lower Rotor Sideband 1	58.00
	Lower Rotor Sideband 2	58.00
Eccentricity	Eccentricity Peak 1	1696.25
	Eccentricity Peak 2	1711.00
	Eccentricity Frequency	1725.75
	Eccentricity Peak 3	1740.50
	Eccentricity Peak 4	1755.25

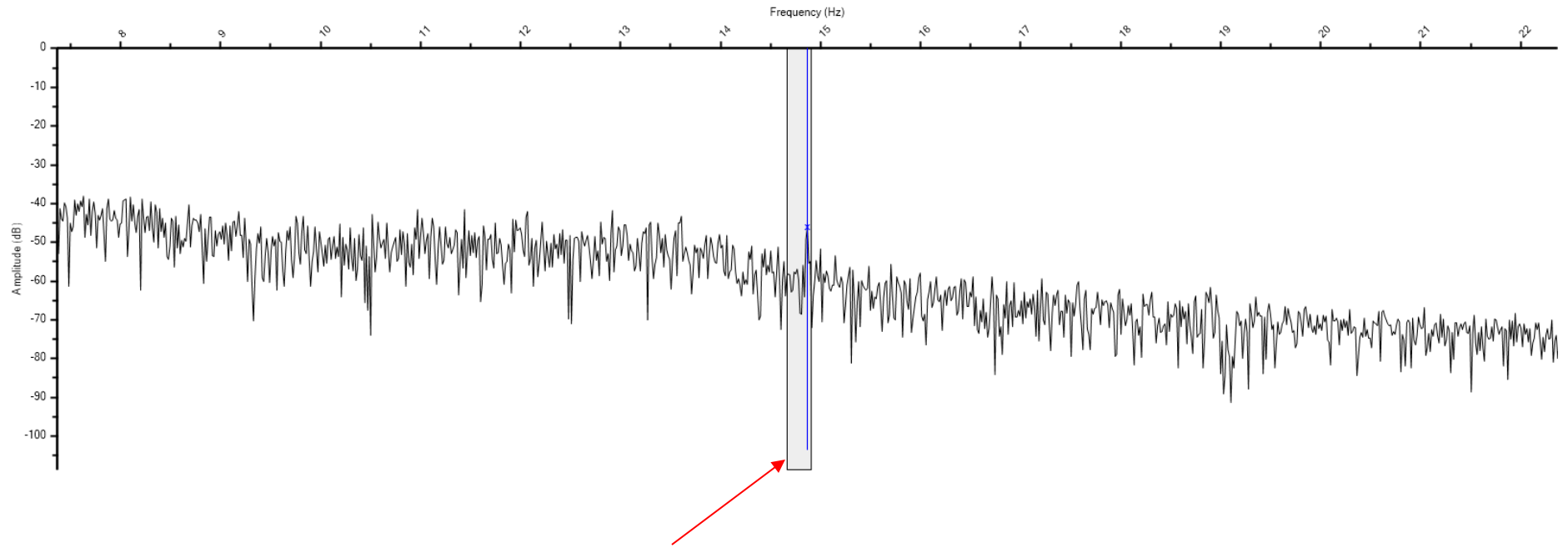
Stator winding problems are found when sidebands appear around the stator slot passing frequencies center frequency (# slots x running speed).

Stator mechanical (ie loose coils, stator core movement, etc): line frequency sidebands

Stator shorts: line frequency sidebands with running speed sidebands

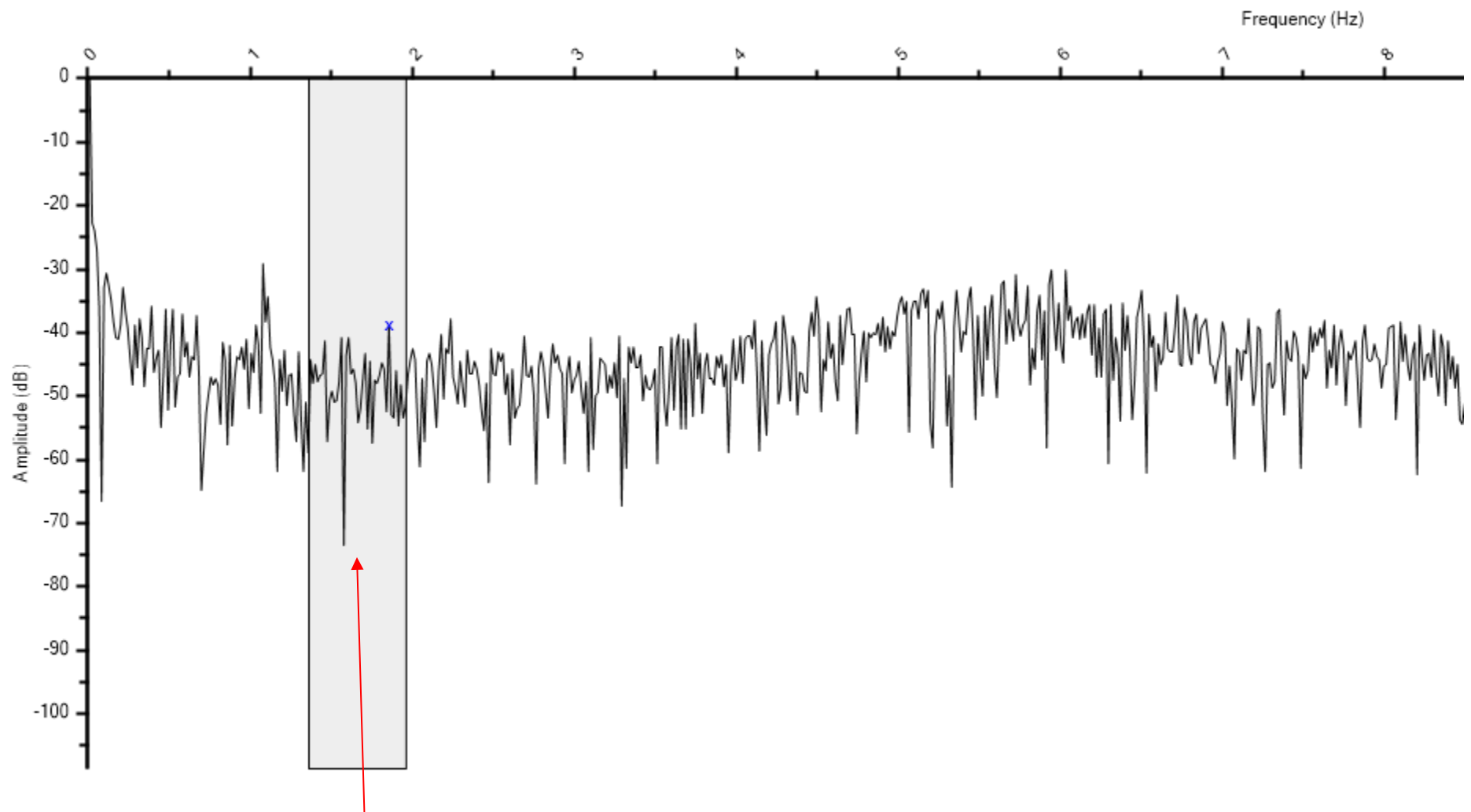
NOTE: If viewing a demod plot, these sidebands will be around the running speed (line frequency is removed)"

Demod Plot



No line frequency sidebands (peaks on either side of the 14.75 Hz running frequency).

This provides assurance of no stator mechanical issues.



No peaks in the upper sideband region of the line frequency ($60\text{Hz}/60\text{Hz}=1\text{Hz}$) confirms no stator mechanical issues or electrical shorts.

Rotor Eval Plot

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	Synchronous Speed (Hz)	15
	Running Speed (rpm)	885
	Running Speed (Hz)	14.75
	Slip Frequency	7.5
Stator Mechanical or Electrical	Stator Lower Sideband (Hz)	1401.25
	Stator Center Freq (Hz)	1416.00
	Stator Upper Sideband (Hz)	1430.75
Broken Rotor Bars	Upper Rotor Sideband 2	64.00
	Upper Rotor Sideband 1	62.00
	Lower Rotor Sideband 1	58.00
	Lower Rotor Sideband 2	58.00
Eccentricity	Eccentricity Peak 1	1696.25
	Eccentricity Peak 2	1711.00
	Eccentricity Frequency	1725.75
	Eccentricity Peak 3	1740.50
	Eccentricity Peak 4	1755.25

Broken rotor bars can be found looking at the slip frequency sidebands of the line frequency. Values are negative relative to line frequency FFT. (<-50dB is rule of thumb.)

>-60dB Excellent

55-60dB Good

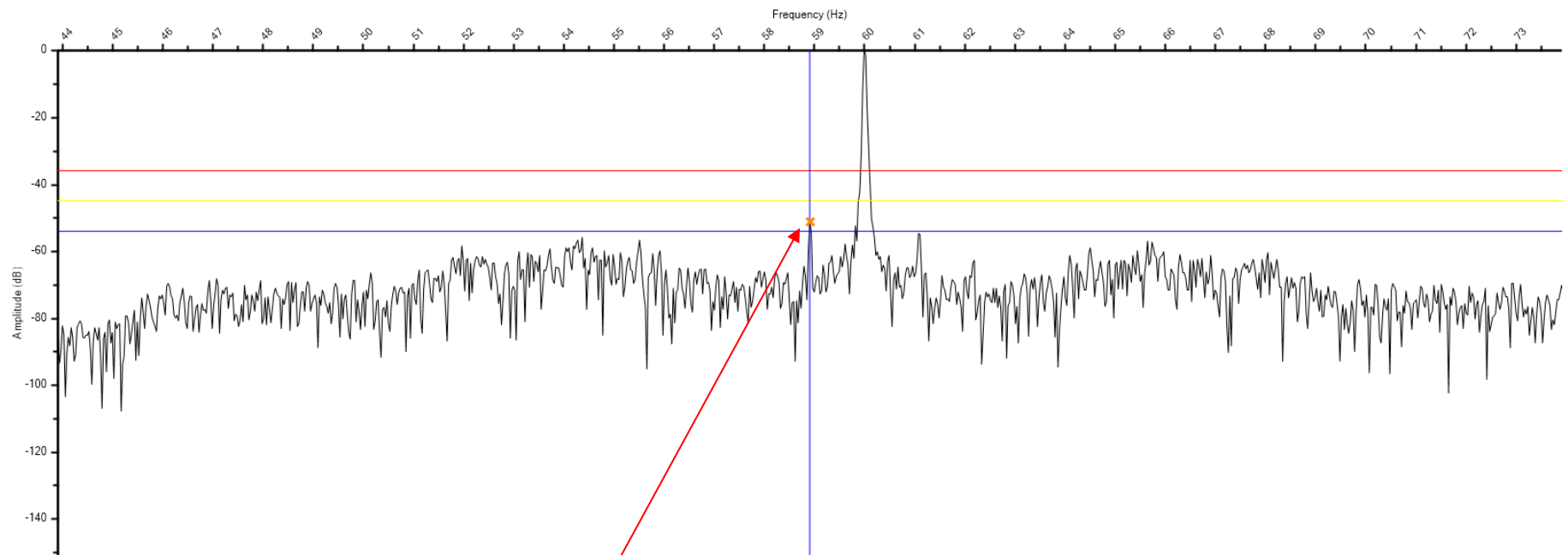
49-54dB Moderate (Trend)

43-48dB Rotor fracture or high resistance joint (Increase test interval)

37-42dB Two or more bars cracked or broken (Confirm w/ motor circuit analysis)

31-36dB Multiple cracked or broken bars and end ring problems (overhaul!)

<30dB Multiple broken rotor bars and other severe rotor problems (overhaul!) "



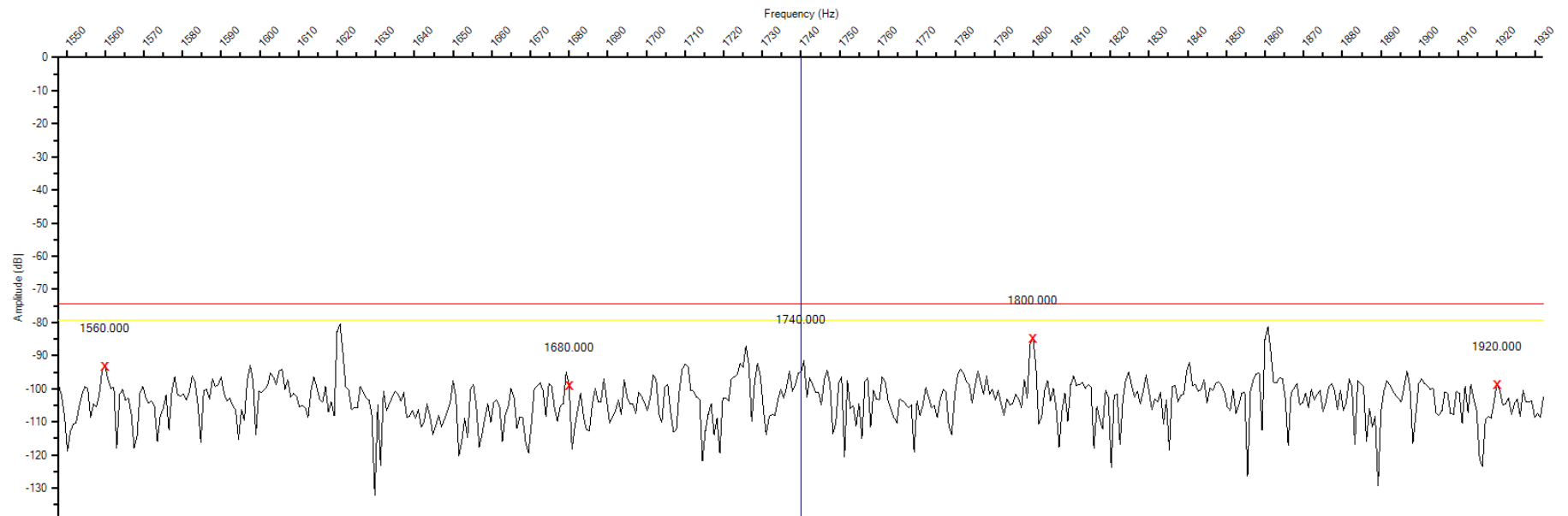
Our test shows the slip frequency sideband at -50dB,
so something to trend and watch for the future based
on the criteria from above **49-54dB Moderate (Trend)**

Eccentricity Plot

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	Synchronous Speed (Hz)	15
	Running Speed (rpm)	885
	Running Speed (Hz)	14.75
	Slip Frequency	7.5
Stator Mechanical or Electrical	Stator Lower Sideband (Hz)	1401.25
	Stator Center Freq (Hz)	1416.00
	Stator Upper Sideband (Hz)	1430.75
Broken Rotor Bars	Upper Rotor Sideband 2	64.00
	Upper Rotor Sideband 1	62.00
	Lower Rotor Sideband 1	58.00
	Lower Rotor Sideband 2	58.00
Eccentricity	Eccentricity Peak 1	1696.25
	Eccentricity Peak 2	1711.00
	Eccentricity Frequency	1725.75
	Eccentricity Peak 3	1740.50
	Eccentricity Peak 4	1755.25

Static eccentricity can be found in line frequency sidebands of the rotor bar x running speed center frequency.

Dynamic eccentricity is the same as static eccentricity but also includes running speed sidebands around the static eccentricity sidebands.



Seeing no distinct peaks at any of the X markers implies that we do not have any air gap eccentricity issues (can be as a result of alignments, bearing degradation, rotor warpage, etc)